

## OPERATING PRINCIPLE – HORIZONTAL PEELER CENTRIFUGE

### STEPS OF A HORIZONTAL BASKET FILTRATION CENTRIFUGE:

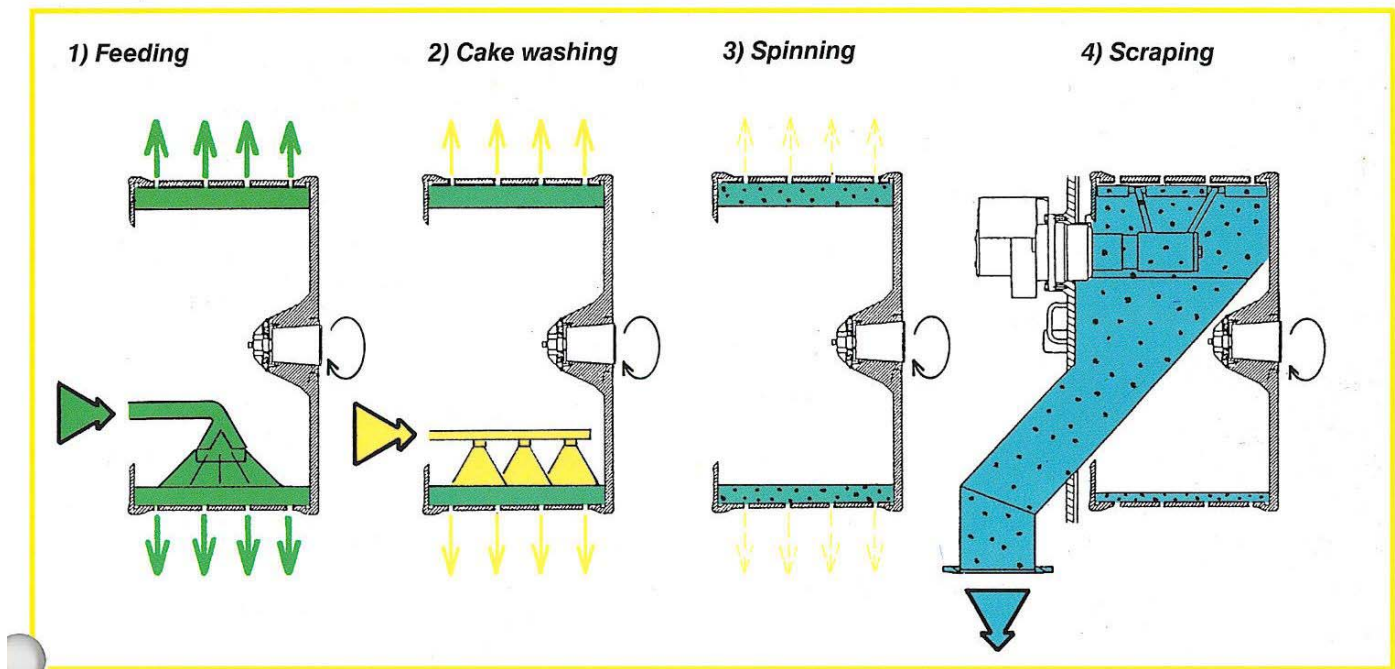


Figure 1: Horizontal Basket Filtration Cycle

- 1) **Feeding:** The slurry is introduced to the rotating basket having a filter cloth. The filter cloth captures the solids. Centrifugal force drives the liquid through the caked solids and the mother liquor is discharged through perforations in the basket circumference.
- 2) **Washing:** A wash liquid is introduced and is driven through the caked solids. The plug flow action of the wash liquid purifies the solids and removes residual mother liquor.
- 3) **Spinning:** Residual liquors are driven from the caked solids and are discharged through the basket perforations to achieve maximum cake dryness.
- 4) **Scraping:** A scraper knife advances into the rotating basket to discharge the solids to downstream equipment.
- 5) **Residual heel removal:** After scraping, a 6-10 mm ( $\frac{1}{4}$ " -  $\frac{3}{8}$ ") layer remains inside the rotating basket. With the scraper in an advanced position, high pressure nitrogen or air is used to dislodge this residual heel. This step can be performed after several centrifuge cycles, or after each cycle.

## STEPS OF A HORIZONTAL BOWL DECONTANTATION CENTRIFUGE:

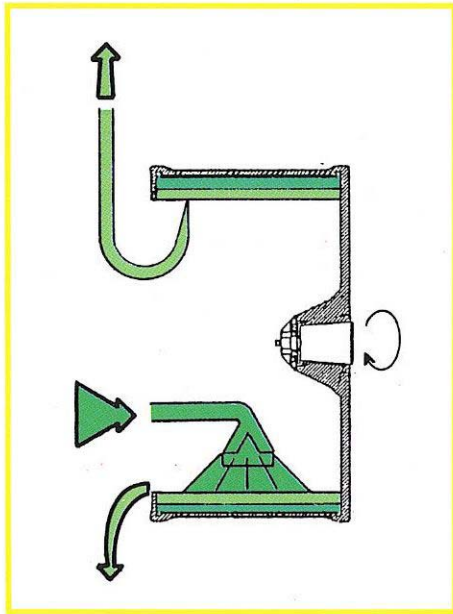


Figure 2: Decantation

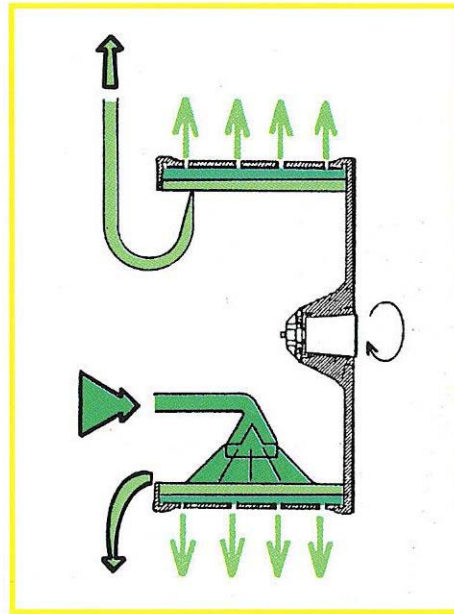


Figure 3: Hybrid operation, filtration / decantation

- 1) **Feeding:** The slurry is introduced to the rotating solid bowl. Centrifugal force drives the solids to the bowl wall.
- 2) **Spinning:** The mother liquor is clarified and the solids are sedimented and compacted.
- 3) **Liquid Discharge:** The clarified mother liquor is discharged by either overflowing the bowl rim and / or with a tangential liquid skimmer.
- 4) **Scraping:** A scraper knife advances into the rotating bowl to discharge the solids to downstream equipment.

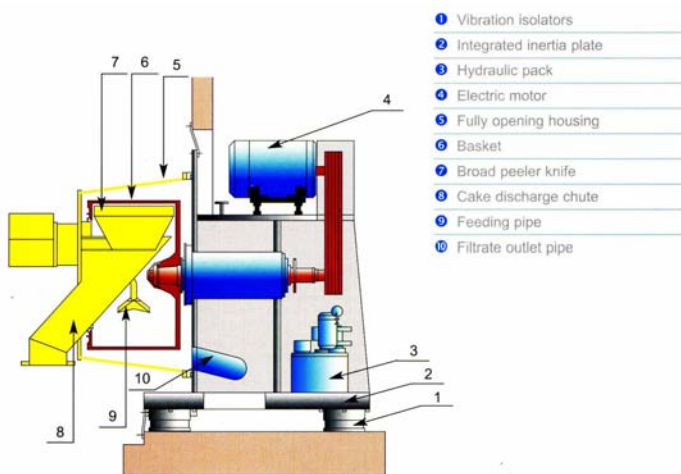
## HYBRID OPERATION [PARTIAL FILTRATION / DECONTANTATION]:

- 1) **Feeding:** The slurry is introduced to the rotating basket. Centrifugal force drives the liquid through the caked solids and the mother liquor is discharged through perforations in the basket circumference. After a

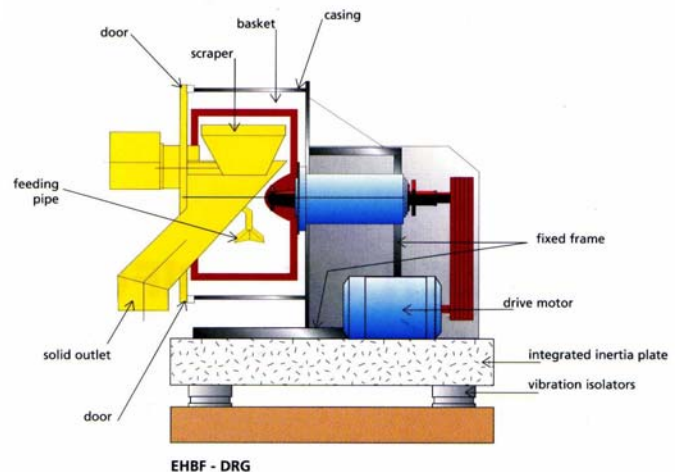
certain cake thickness is achieved, filtration is no longer possible. The remaining clarified mother liquor is discharged by overflowing the basket rim or with a tangential liquid skimmer.

- 2) **Spinning:** Residual liquors are driven from the caked solids and are discharged through the basket perforations to achieve maximum cake dryness.
- 3) **Scraping:** A scraper knife advances into the rotating basket to discharge the solids to downstream equipment.
- 4) **Residual heel removal:** After scraping, a 6-10 mm ( $\frac{1}{4}$ " -  $\frac{3}{8}$ ") layer remains inside the rotating basket. With the scraper in an advanced position, high pressure nitrogen or air is used to dislodge this residual heel. This step can be performed after several centrifuge cycles, or after each cycle.

### CUTAWAY DIAGRAMS OF HORIZONTAL PEELER CENTRIFUGES:



**Horizontal Peeler – Pharma Design**



**Horizontal Peeler – Chem Duty Design**